

PATENT
TS5580 (US)
CML

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCES

In re the application of)	
)	
NICHOLAS J. ADAMS ET AL)	
)	
Serial No. 10/520,802)	Group Art Unit: 1764
)	
Filed June 27, 2005)	Examiner: Prem C. Singh
)	
PROCESS TO PREPARE A HEAVY AND A)	December 5, 2007
LIGHT LUBRICATING BASE OIL)	
_____)	

COMMISSIONER FOR PATENTS
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

SUPPLEMENTAL APPEAL BRIEF

Applicants hereby submit this Appeal Brief in response to the Notification mailed December 27, 2007. Please charge any fees necessary in connection with the filing of this brief to Shell Oil Company Deposit Account 19-1800.

Real Party in Interest

The real party in interest is Shell Oil Company.

Related Appeals and Interferences

To the best of the undersigned's knowledge, there are no related appeals or interferences.

Status of Claims

Claims 1-20 were finally rejected in the Office Action mailed May 2, 2007 and are on appeal. The finality of this rejection was maintained in the Advisory Action mailed August 22, 2007.

Status of Amendments

In a response filed on August 2, 2007, after the final rejection, an amendment was made to claim 1 changing the word "fraction" to "feedstock" in claim 1 to clarify the claim. Additionally, an amendment was made to claim 20 to correct a typographical error in the spelling of "kinematic." In the Advisory Action mailed August 22, 2007, the Examiner indicated that those proposed amendments would be entered for purposes of appeal. Accordingly, the appealed claims include these amendments.

Summary of Claimed Subject Matter

The application currently claims one independent claim. The invention as set forth in claim 1 is directed to a process to prepare a heavy base oil and a light lubricating base oil from a partly isomerized Fischer-Tropsch derived feedstock. The heavy base oil has a kinematic viscosity at 100°C of above 15 cSt. The light lubricating base oil has a kinematic viscosity at 100°C of between 3.8 and 6 cSt. The partly isomerized Fischer-Tropsch derived feedstock has an initial boiling point of below 400°C and a final boiling point of above 600°C with the fraction boiling above 540°C being at least 20 wt%. The process comprises at least three steps.

In the first step, the feedstock is separated, via distillation, into a light base oil precursor fraction and a heavy base oil precursor fraction. The feedstock is defined on page 3, line 16 through page 4, line 8. The separating step is discussed on page 4, lines 9-23 and on page 11, lines 19-28.

In the second step, the pour point of each separate base oil precursor fraction is reduced by means of dewaxing. This step is discussed on page 11, line 29 through page 12, line 7. The dewaxing can be performed by several different means including solvent dewaxing and catalyst

dewaxing. Solvent dewaxing is discussed on page 4, line 27 to page 5, line 18 and catalyst dewaxing is discussed on page 5, line 19 to page 6, line 15.

In the third step, the desired base oil products are isolated from the dewaxed oil fractions obtained in the second step. This isolating step is discussed on page 12, line 8 to page 13, line 2.

Grounds of Rejection to be Reviewed on Appeal

In the final office action, claims 1-20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Berlowitz et al. (6,475,960).

Argument

Rejection of Claims 1-20 Under 35 U.S.C. 103(a) Over Berlowitz et al.

In the office action, claims 1-20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Berlowitz (6,475,960). In the Berlowitz process, a Fischer-Tropsch hydrocarbon feedstock is hydroisomerized, dewaxed and then fractionated to form two or more fractions of different viscosity as base stocks.

The present invention differs from the Berlowitz process in that the feedstock is separated into a light base oil precursor fraction and a heavy base oil precursor fraction prior to the dewaxing step. Applicants submit that there is no teaching or suggestion in the Berlowitz reference of fractionating the partly isomerized Fischer-Tropsch derived feedstock into a first base oil precursor fraction and a second base oil precursor fraction followed by separate dewaxing steps. There is no teaching in Berlowitz of creating two base oil precursor fractions and then separately dewaxing those fractions.

In the Advisory Action, the Examiner rejected Applicants' argument that Berlowitz does not teach creating two base oil precursor fractions and then separately dewaxing those fractions. The Examiner stated, "The Applicant's argument is not persuasive because Berlowitz discloses, 'After the waxy feed has been hydroisomerized, the hydroisomerate is typically sent to a fractionator to remove the 650-750°F- boiling fraction and the remaining 650-750°F+ hydroisomerate dewaxed to reduce its pour point and form a dewaxate comprising the desired lube oil base stock. If desired however, the entire hydroisomerate may be dewaxed' (Column 3, lines 60-66). Clearly, Berlowitz is hydrodewaxing the heavier component (650-750°F+) but suggests hydrodewaxing of lighter component (650-750°F-) also, if needed."

However, the Examiner has not pointed to any teaching in Berlowitz that the separate fractions would be separately dewaxed. To the contrary, common sense would suggest that the statement in Berlowitz that the entire hydroisomerate may be dewaxed means that it would be done in a single dewaxing step followed by fractionation. As set forth on page 11, line 29 through page 12, line 7 of the specification, the present invention requires that the dewaxing step be performed in two parallel reactors or that the process be performed in a so-called blocked out mode. The blocked out mode requires less reactors but on the other hand requires more intermediate storage and operational changes. Both of these processes would increase the complexity and cost of a refinery. Accordingly, Applicants submit that it would not be obvious to perform the separate dewaxing steps.

The Examiner has not met his burden of proof of establishing a prima facie case of obviousness with respect to the presently claimed invention. Rejections on the grounds of obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reason with some rationale underpinning to support the legal conclusion of obviousness. See *In re Kahn* 441 F3d 977, 988 (Fed. Circuit) 266. See also *KSR International Co. v. Teleflex Inc.* 127 S.Ct. 1727 (2007).

Inasmuch as claims 2-20 all depend from claim 1 either directly or indirectly, Applicants submit that they are not obvious over the Berlowitz reference for the foregoing reasons.

Conclusion

Based on the foregoing arguments, Applicants assert that the claims of the present application would not have been obvious in view of the cited reference. It is respectfully requested that this appeal be upheld and that the application be sent back to the Examiner for allowance.

Respectfully submitted,

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CLAIMS APPENDIX

1. A process to prepare a heavy base oil having a kinematic viscosity at 100 °C of above 15 cSt and a light lubricating base oil having a kinematic viscosity at 100 °C of between 3.8 and 6 cSt from a partly isomerized Fischer-Tropsch derived feedstock, said feedstock having an initial boiling point of below 400 °C and a final boiling point of above 600 °C and the fraction boiling above 540 °C is at least 20 wt%, said process comprising:
 - (a) separating, via distillation, said feedstock into a light base oil precursor fraction and a heavy base oil precursor fraction;
 - (b) reducing the pour point of each separate base oil precursor fraction by means of dewaxing; and,
 - (c) and isolating the desired base oil products from said dewaxed oil fractions as obtained in step (b).
2. The process of claim 1, wherein the effective cut temperature in step (a) at which the light and heavy base oil precursor fractions are separated is between 470 °C and 600 °C.
3. The process of claim 1, wherein the fraction boiling above 540 °C in the feed to step (a) is at least 30 wt%.
4. The process of claim 1, wherein the heavy base oil as obtained in step (c) has a kinematic viscosity at 100 °C of above 17 cSt.
5. The process of claim 4, wherein a base oil having a kinematic viscosity at 100 °C of between 7 cSt and 15 cSt is isolated from the dewaxed light base oil precursor fraction.
6. The process of claim 1, wherein the dewaxing of the heavy and light base oil precursor fraction is performed simultaneously in two different reactors.

7. The process of claim 1, wherein the dewaxing step is performed by means of a catalytic dewaxing process in the presence of a catalyst comprising a medium pore size molecular sieve and a Group VIII metal.
8. The process of claim 7, wherein the molecular sieve is selected from the group consisting of a MTW, MTT and TON type molecular sieve.
9. The process of claim 7, wherein the Group VIII metal is platinum or palladium.
10. The process of claim 7, wherein the catalyst used in the catalytic dewaxing of the heavy base oil precursor fraction comprises a MTW molecular sieve, platinum or palladium as Group VIII metal and a silica binder.
11. The process of claim 10, wherein the catalytic dewaxing of both light and heavy base oil precursor fractions is performed in the presence of a catalyst comprising a MTW molecular sieve, platinum or palladium as Group VIII metal and a silica binder.
12. The process of claim 1, wherein the heavy base oil precursor fraction is reduced in pour point by first performing a pour point reducing step in the presence of a catalyst comprising a 12-member ring zeolite and secondly performing a catalytic dewaxing on the effluent of the first step in the presence of a 10-member ring zeolite.
13. The process of claim 12, wherein the pour point after the first dewaxing step is between -10 °C and +10 °C.
14. The process of claim 2, wherein the fraction boiling above 540 °C in the feed to step (a) is at least 30 wt%.
15. The process of claim 1, wherein the heavy base oil as obtained in step (c) has a kinematic viscosity at 100 °C of above 20 cSt.

16. The process of claim 15, wherein a base oil having a kinematic viscosity at 100 °C of between 7 cSt and 15 cSt is isolated from the dewaxed light base oil precursor fraction.
17. The process of claim 8, wherein the Group VIII metal is platinum or palladium.
18. The process of claim 2, wherein the heavy base oil precursor fraction is reduced in pour point by first performing a pour point reducing step in the presence of a catalyst comprising a 12-member ring zeolite and secondly performing a catalytic dewaxing on the effluent of the first step in the presence of a 10-member ring zeolite.
19. The process of claim 18, wherein the pour point after the first dewaxing step is between -10 °C and +10 °C.
20. The process of claim 3, wherein the heavy base oil as obtained in step (c) has a kinematic viscosity at 100 °C of above 20 cSt.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None